FAA | AVIATION NEWS

March 1963

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FEDERAL AVIATION AGENCY

VOL. 1, NO. 11 MARCH 1963

SAFETY IS A TWO-WAY STREET

Whether Sam Clemens was the best pilot who ever dodged snags and sandbars on our Western rivers, he was surely the most articulate. It's too bad he never had a chance to pilot an airplane. He would have loved flying, and aviation would have benefited from his gift for saying things in a way that people remember. They even remember things he didn't say, or didn't say first, like "Everybody talks about the weather but nobody does anything about it." It would be wonderful if he could turn his wit—and his wisdom—to the problem of aviation weather and the need for sharpening pilots' awareness of the problem.

Perhaps he could point out with some memory-catching turn—so pilots would keep it in mind—that weather is a growing factor in aviation accidents. For general aviation, weather was a factor in 15 percent of the fatal accidents in 1959. But what is discouraging is that in 1960 the percentage rose to 24 percent and to 27 percent in 1961. The problem is serious and growing worse but it isn't true that nobody is doing anything about it. The Federal Aviation Agency, for one, has several programs designed to help.

FAA's Blue Seal program, for example, has a two-fold purpose: To help pilots recognize their limitations and to provide them with the rudiments of instrument familiarity so they can do a 180 and turn back and not become a statistic.

In a new program to help pilots, FAA has acquired a series of outstanding movies on the subject of weather (*see* page 6). They are available to pilot groups.

In other actions (*see* page 3), FAA has tightened up some of the operating procedures in terminal areas during periods of reduced visibility. And beginning this spring, *FAA Aviation News* will launch a series of authoritative articles on aviation weather prepared by meteorologists of the Weather Bureau.

But these efforts aren't much more than a beginning. Real progress will wait for the day when every pilot who leaves the airport traffic pattern takes with him an awareness and understanding of weather problems, plus a constant reminder that there will be a lot of people talking about the weather along the route, just as the expression goes, but he's the one that will have to do something about it.

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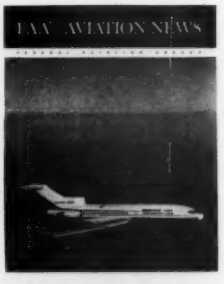


***COVER:** Boeing 727, first U. S. three-engined jet, takes to the air in maiden flight as part of flight testing program. After further tests and FAA certification, first 727's are slated for airline use late this year.*

FAA AVIATION NEWS is published monthly by the Office of Public Affairs, Federal Aviation Agency, Washington 25, D.C., in the interest of aviation safety and to acquaint readers with the policies and programs of the Agency. Use of funds for printing this publication approved by the Director of the Bureau of the Budget February 1, 1963. Subscription rates: U.S. $1.50 a year, foreign $2.00 a year, single copies 15 cents. Send check or money order (no stamps) to Superintendent of Documents, Government Printing Office, Washington 25, D.C.

New Programs Underway to Improve Weather Safety at Airports

New approaches to one of aviation's most difficult and challenging problems —low clouds and poor visibility at the airport—are being tried by the Federal Aviation Agency to improve the safety record in the air and on the ground around airfields.

A runway visibility observer program has been started by FAA at three major airports as a back-up for reporting visibility along the runway-in-use in the event automatic reporting equipment becomes inoperative during bad weather or the runway does not have the equipment.

The program, which is being carried out with U. S. Weather Bureau cooperation, has been implemented at New York International (Idlewild) Airport, Chicago's O'Hare International and Los Angeles International.

When visibility goes below one and one-half miles, runway visibility observers are stationed in heated vehicles near the approach end of the runway or runways being used for landings at the time. They have a two-way radio and maintain contact with the tower to report their visibility observations when necessary. Predetermined visibility targets, such as lights, buildings or special markers spaced at known distances, are used to judge visibility. Departure runways also are manned when observers are not needed on landing runways.

Should the prevailing runway not have electronic visibility reporting equipment, the observer starts making his reports to the tower as soon as he gets out to the runway, provided the visibility drops below 1½ miles. During daylight hours, visibility is reported in ¼-mile increments beginning with 1¼ miles down to ¼ mile. At night, values are reported in ⅛-mile increments down to ¼ mile. Visibility reports communicated by runway observers to the tower serve to control operations for the runway being used.

Initially, the program used FAA tower controllers who also were qualified to take weather observations. Over-all plans call for observer personnel to be furnished by both FAA and the Weather Bureau, with the Weather Bureau generally assuming responsibility for supplying observers at such time as the airport weather stations would be adequately staffed to handle the requirement should it arise.

The runway observer program at the three airports will undergo a 90-day period of evaluation before any further action is taken.

At the same time, the Agency and the Weather Bureau are speeding up installation of transmissometers at the three airports on frequently-used runways not now equipped with this automatic visibility recording device. The present program calls for installing such equipment at other busy airports as well.

Of particular interest to general aviation is FAA's special advisory program for pilots operating under instrument flight rules (IFR).

When weather conditions at an airport drop below the minimums officially prescribed for the field, the approaching pilot is given the official weather report and told that the conditions are below prescribed levels. Unless the pilot indicates he will either hold or proceed to an alternate airport, he is cautioned that a landing will result in a violation report except in an emergency. This is being done to make absolutely sure the pilot is aware that conditions at the field are below safe minimums and does not mistakenly assume that radio communications with the tower constitute approval despite unsafe conditions.

If the pilot advises he intends to execute an approach, the controller will issue an approach and landing clearance appropriate to the traffic situation. The investigation of the violation takes place afterwards.

This new procedure does not apply to pilots engaged in scheduled air carrier operations since they are governed by minimums prescribed in their operations specifications.

Officially prescribed minimums for specific airports and for specific types of instrument approaches are published on current Coast and Geodetic Approach and Landing Charts or on amending NOTAMS.

In another action, this one concerning VFR operations in the terminal area, the FAA has proposed a new rule that would establish a minimum ceiling of 500 feet as a condition for issuing an ATC clearance for special VFR operations in airport control zones.

Current regulations specify that a special VFR clearance may be issued to a pilot operating in a control zone provided he can stay clear of clouds and visibility conditions are one mile or more.

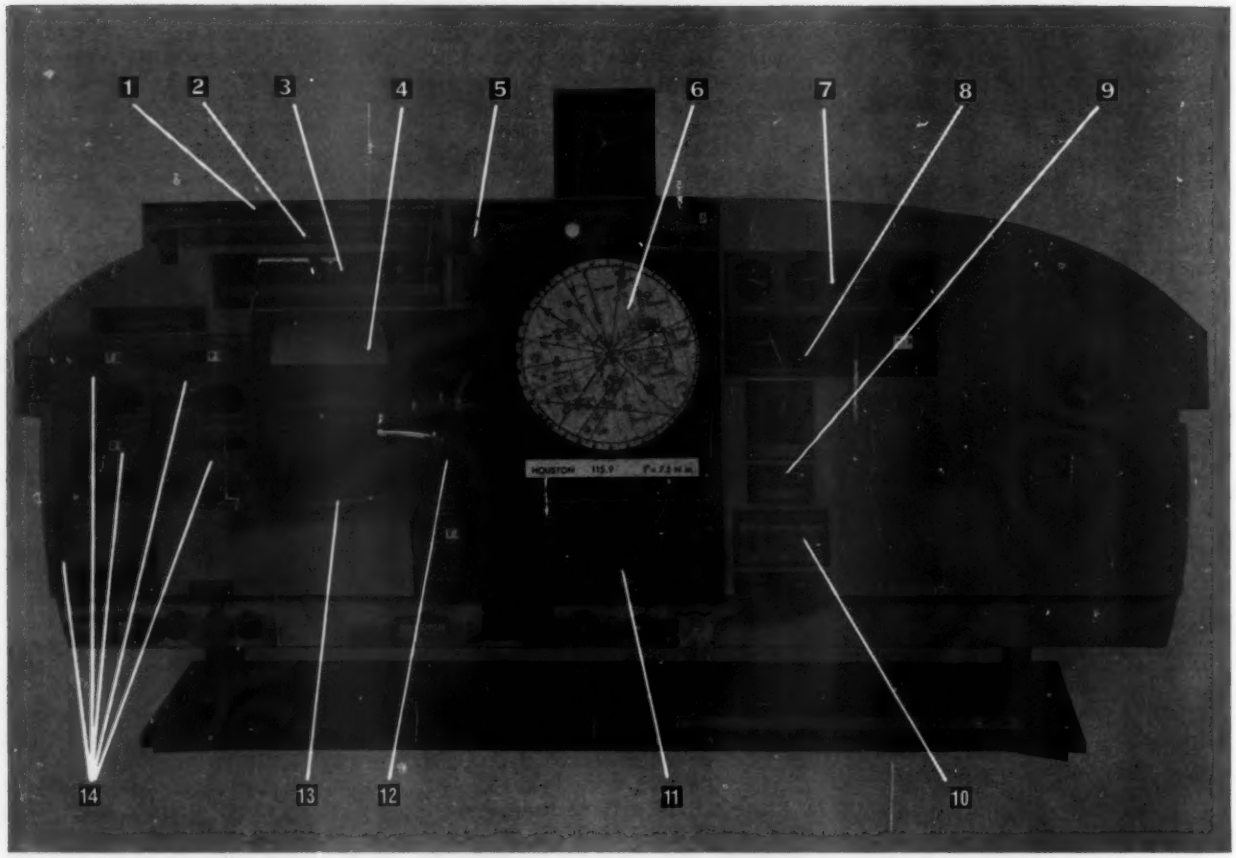
The proposed rule carries over from ne existing rule the provisions (in addition to the newly proposed 500 foot ceiling criterion) that the pilot must be able to remain clear of clouds and that visibility is not less than one mile before special VFR clearances can be issued to operate in control zones.

An airport control zone generally extends five miles in radius from the center of the airport and vertically from the surface to an unlimited height. Such zones are intended to provide protection to IFR operations during bad weather. The zone can have extensions to give such flights additional controlled airspace.

Comments on the proposed rule can be submitted until April 8 to the FAA Docket Section, 1711 New York Avenue, N. W., Washington 25, D. C. The proposal is Draft Release 63-4, Reg. Docket No. 1587. It would amend Section 60.31, Part 60.

Observer stationed near runway at Idlewild Airport uses two-way radio to report visibility to tower.

Simplified Light Plane Instrument Panel Under Development



FAA's Project Little Guy, which seeks to develop a simplified and more efficient cockpit for the general aviation pilot, has produced an experimental mock-up that could evolve into the light plane instrument panel of the future.

Subject to continuing modification and improvement as Project Little Guy moves ahead, the static mock-up includes among its elements, as numbered above:

1. Check-off sheets that pull out of the instrument panel covering start, takeoff, cruise, landing and shutdown.

2. A bank of red warning lights to alert the pilot to such conditions as "brake on," "oxygen low," "fuel low," "door unlocked."

3. Horizontal, linear airspeed indicator.

4. Pictorial attitude display.

5. Landing gear actuating lever removed from other controls and placed so as to minimize inadvertent retraction of the gear on the ground.

6. Pictorial navigation display showing aircraft position on a map of the area, with inputs from electronic navigation equipment.

7. Oil temperature, oil pressure, cylinder temperature and ammeter dials.

8. Dial showing hours of fuel remaining at current speed.

9. Direct read-out of ground speed.

10. Three-axis autopilot master switch.

11. Programmed power settings on easily-read columnar displays. The pilot would match his throttle, mixture and prop settings against required settings shown on the display for takeoff, climb, and economy, normal and high speed cruise.

12. Vertical read-out altimeter and rate-of-climb indicator.

13. Horizontal directional gyro display.

14. Communications, navigation and transponder equipment.

Next step in the program will be construction of a dynamic model of this instrument panel and intensive testing of it in a simulator at FAA's National Aviation Facilities Experimental Center (NAFEC), Atlantic City, N. J. During this stage, the panel will be exposed to continuing critical assessment, with changes, improvements and additions expected. The panel and other possible developmental cockpit arrangements that come out of simulation and study work through the remainder of 1963 and into 1964 could be far different from the current mock-up.

Stringent evaluation and appraisal will continue during a program of flight testing Little Guy equipment and systems scheduled to get under way in 1964.

Project objective, following this test work, is to make improved prototype equipment that meets Little Guy's aims available to the aviation industry for future aircraft.

Instant Flight Info Provided at Dulles

An automated visual communication system at Dulles International Airport offers instant flight information to travelers and those meeting passengers.

The flight information display is operated electronically and controlled remotely from the ground control tower located half-a-mile from the terminal at the jet parking apron. Here, an operator punches out the information on a console resembling a typewriter. At the press of a button, flight data is flashed or erased almost instantaneously on the two boards located on the main floor of the terminal.

The flight information display shows flight number, airline, destination or point of departure, time of departure or arrival and the gate number. Information on each individual flight also is repeated at the designated gate prior to flight. Unlike other airports, arrival and departure time posted at Dulles is the time that the mobile lounge arrives or departs from the terminal building dock. This is the time meant in airline schedules for "DIA" as well.

DEADLINE FOR AGRICULTURAL RULES EXTENDED

Strong industry interest in proposed new rules for agricultural aircraft operators has prompted the Federal Aviation Agency to extend the deadline for comments until April 1.

To date, the proposal has drawn more than 130 comments.

Published last November as proposed new Part 55 of the *Civil Air Regulations*, the measure prescribes certification and operation standards for agricultural aviation. The original deadline for comments was January 15.

Communications should be submitted in duplicate to the Docket Section of FAA, Room A-103, 1711 New York Avenue, N. W., Washington 25, D. C. All comments are open to the public.

Pilots Invited to Visit Facilities As Part of Familiarization Program

Two major operational Services of FAA—Flight Standards and Air Traffic —are pooling their resources in a nationwide program to foster air safety through a closer FAA-aviation community working relationship.

A program to invite pilots to observe operations at towers, Flight Service Stations and Centers got under way last month. Aimed particularly at the newly-certificated student pilot but available to all pilots, the program is designed to encourage familiarization and understanding of the services available.

During their visit, pilots are briefed on such subjects as new procedures, special services and common operating problems. Films, filmstrips and other visual aids may be used to supplement the briefings.

Information on the program along with the names, locations and telephone numbers of the various local air traffic control facilities in the areas served by FAA's General Aviation District Offices (GADO) has been distributed to airport operations offices and pilot training facilities. Qualified FAA personnel have been designated for each watch to meet with visiting pilots.

General Aviation Operations Inspectors are encouraging all pilots who have not done so to spend at least one hour at the facility visited. Pilots are requested to call before coming to the facility to avoid overly large groups.

The program is expected to continue at least until December 31, 1963. Its continuation after this date will depend on the results achieved.

TECHNICAL REPORTS FOR 1962 AVAILABLE

FAA's Systems Research and Development Service released 67 aviation technical reports for distribution to the public during calendar year 1962. They dealt with a broad range of subjects in the areas of aircraft operations, navigation, air traffic control, weather, airports and electronic equipment and systems.

A full list of these reports is available from the Office of Public Affairs, Federal Aviation Agency, Washington 25, D. C. The reports themselves may be obtained from the Office of Technical Services, U. S. Department of Commerce.

Conference Scheduled on Aviation Mechanic Schools

A one-day conference on improving and modernizing aviation mechanic school certification requirements has been scheduled for April 5 by FAA at the Pittsburgh Institute of Aeronautics, Allegheny County Airport, Pittsburgh.

George H. Weitz, Chief of the Maintenance Division, pointed out that FAA recognizes graduates from an approved school as meeting the experience requirements for an aviation mechanic certificate but not the knowledge and skill requirements. Graduates still must pass FAA written, oral and practical examinations.

"Since training conducted in certificated aviation mechanic schools is closely controlled to meet high standards, we are considering new concepts or methods of operation which will increase the participation of these schools in the aviation mechanic certification processes."

Among subjects to be discussed at the meeting is the present system of conducting FAA examinations. Students of approved schools now must wait until after graduation to take these tests, and this has resulted in inconveniences for the students, schools and FAA.

Consequently, the Agency is reevaluating its examination procedures. Possible alternatives include (1) permitting FAA tests to be integrated into the present school curriculum in order to eliminate mass examinations at the end of training, and (2) permitting schools to develop, within broad guidelines, their own instruction and testing program to produce a graduate with the proper level of aeronautical skill and knowledge without further examination by FAA.

Other topics on the agenda include aviation mechanic school curricula, instructional equipment and operating requirements. All interested persons are invited to attend the conference.

Effect of Sonic Boom on Light Airplanes Studied

FAA and two sister government agencies examined the effects of sonic boom on light aircraft and helicopters in a flight test program at Edwards Air Force Base, Calif., last month. Cooperating with FAA in the program were the National Aeronautics and Space Administration and the Defense Department.

Air Force F-104, F-106 and T-38 supersonic jets subjected assorted light planes and helicopters to booms of varying intensities while they were on the ground, cruising, turning and near stall configuration in the case of fixed wing craft.

The light craft were a Piper PA-22 Colt, a Piper PA-23 Apache, a Piper PA-24 Comanche and a Beech C-45. The Piper aircraft were rented by FAA for the tests. The C-45 is an FAA plane. All were flown by FAA test pilots.

Hiller, Bell and Vertol helicopters were provided by the Army and were flown by Army pilots. Two helicopters were rented and flown by FAA pilots.

Under investigation in the flight program were potential dangers of structural damage to aircraft and other safety-of-flight factors. The light aircraft and helicopters received thorough structural inspections before and after each sonic boom generation run by the jets. The test aircraft also were instrumented with accelerometers and automatic cameras to provide in-flight test data on boom effect. In addition, FAA observers flew with the pilots to watch for specific psychological and physiological reactions.

The generating aircraft produced booms of varying intensities by varying their speed and distance as they performed their supersonic fly-bys. The Air Force jets flew between 4,000 feet and 35,000 feet at speeds ranging from approximately Mach 1.1 to Mach 1.5. The speed of sound is Mach 1. The light craft underwent the tests at altitudes ranging from the ground to 5,000 feet.

Analysis and evaluation of data collected in these tests is now under way. A report will be prepared later this year.

Richard B. Leng, California manufacturing and research executive, who has been named Director of FAA's Installation and Materiel Service which handles all FAA contracting and procurement.

Educational Films Available For Showing to Aviation Groups

Nine color movies of interest to aviation groups are now available.

The 16 mm films with a non-technical narration are designed for pilot groups, flying clubs, CAP chapters and similar organizations. The movies, which run 10-30 minutes, tell the story of air traffic control, experimental projects, rudiments of instrument flying and other subjects.

- *Flight* (FA-117) is a prize-winning documentary showing how FAA flight inspectors, scientists and air traffic controllers in airport towers, Air Route Traffic Control Centers and other facilities throughout the nation work together to safeguard flight. 28 minutes
- *What's My Traffic?* (FA-201) is designed for IFR pilots and demonstrates how controllers use radar, radio, telephones and flight progress strips to control traffic. 25 minutes
- *Path from the Sky* (FA-119) describes projects underway at FAA's National Aviation Facilities Experimental Center at Atlantic City, N. J., to improve take-off and landing systems. 15 minutes
- *A Case for Dr. Driscoll* (FA-202) depicts the role of the Aviation Medical Examiner in assisting in the investigation of general aviation aircraft accidents. It is primarily for doctors and state, county and municipal police. 22 minutes
- *One Eye on the Instruments* (FA-209) demonstrates how the pilot who flies "by the seat of his pants" can get into trouble, and shows how FAA's Blue Seal program to encourage elementary instrument flying can make him a safer pilot. 15½ minutes

Four weather films, originally produced by Walt Disney to train U. S. Navy pilots during World War II and updated by the Navy in 1962, describe various weather phenomena as indicated by their titles. They are generally considered the most informative weather films available today:

- *Fog and Low Ceiling Clouds* (FAN--101) Advection Fog and Ground Fog. 23 minutes
- *Fog and Low Ceiling Clouds* (FAN-102) Upslope Fog and Frontal Fog. 9 minutes
- *The Cold Front.* (FAN-103) 15 minutes
- *The Warm Front.* (FAN-104) 18 minutes

Films are available from the Film Library, AC-142.1, FAA Aeronautical Center, Oklahoma City, Okla. At least three weeks should be allowed for delivery.

SAFETY FIRST

MAYDAY... MAYDAY... MAYDAY

A pilot is in trouble. He calls for help —"Mayday!" Who hears?

On call, as of September, 1962, there were 18,000 FAA controllers and flight service specialists; 961 air/ground communications channels; 700 VORs and VORTACs, short range navigation aids; 340 Flight Service Stations; 260 Airport Traffic Control Towers; 200 approach control facilities; 67 military VHF/DF stations; 10 FAA HF/DF stations; 68 Airport Surveillance Radars; 49 Long Range Radars; 28 Precision Approach Radars; and 36 Air Route Traffic Control Centers.

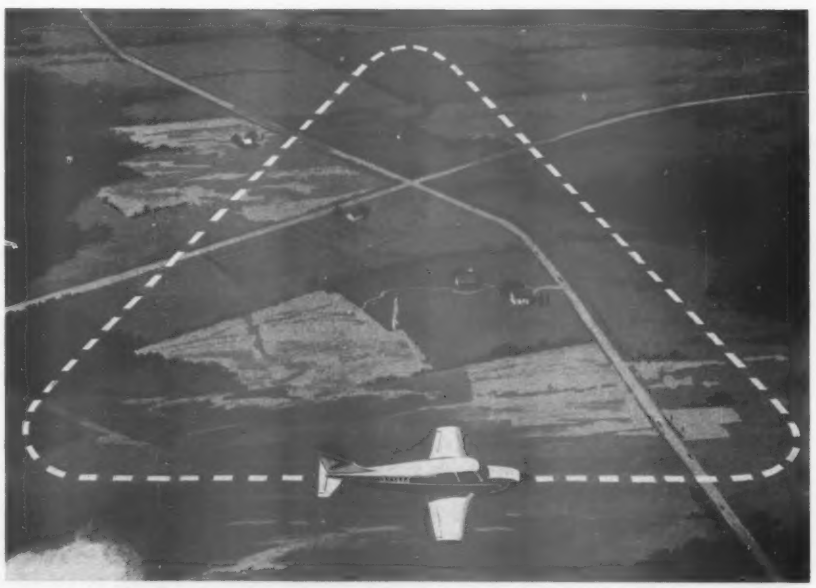
To receive help, a pilot declares an emergency by: (1) communicating with somebody—even IN THE BLIND—preceding the message three times with the word "MAYDAY"; or (2) flying a triangular pattern if lost or disoriented.

FAA Flight Service Station personnel are trained, by voice directions alone, to get pilots back on course or to an airport.

Direction Finding (D/F) aids, by electronically measuring the bearing of aircraft radio signals, establish a pilot's direction from a station and enable ground personnel to give magnetic headings toward a desired destination.

Radar aids—over 140 FAA-operated units plus many military installations—can help pilots who have no radio operating, transmitter alone or receiver alone. By flying a minimum of two triangular patterns, repeated every twenty minutes, a pilot's plight becomes apparent to radar operators who will transmit instructions on emergency frequency (121.5 mc) or dispatch Air Rescue Service aircraft for interception and guidance.

Details on D/F equipment, emergencies, radio failure, search and rescue and radar procedures are found in the current editions of the *Flight Information Manual* and the *Airman's Guide*.



Pilots in distress with both radio transmitter and receiver inoperative, or radio transmitter alone functioning, fly a minimum of two triangular patterns in two-minute legs as shown above. Those with radio receiver alone functioning, should follow the same procedure, except they make all turns to the right.

Above, operations inspector supervises exams being given for a private license and instrument rating. Below, he observes student's preflight prior to giving flight check.

DEDICATION CHARACTERIZES G

Spotted strategically across the United States are 500 men men who are "Mr. FAA" to many of the nation's 350,000 pilots and 170,000 mechanics, parachute riggers, radio technicians, and others, the majority of whom operate and maintain the country's 80,000 general aviation aircraft.

They are the Agency's operations and maintenance inspectors who are assigned to more than 90 General Aviation District Offices (GADOs)—the grass roots of the Federal Aviation Agency. The inspectors' duties are varied. On one day, they may be on the side of a mountain range, hip deep in snow, investigating an accident. A few days later their job takes them down to the flatlands hundreds of miles away, giving pilot examinations at a flying school or inspecting a home-built experimental aircraft.

In between, they try to maintain a semblance of an office schedule as diverse as answering questions from Governors and Senators as well as from a young student pilot preparing to take his first exam.

It is this very diversity which attracts GADO inspectors to the job, giving the group pride in their work and organization and a "can do" attitude backed up by their love of aviation. Hours mean little to the inspector; he's ready to grab his hat and be off on another assignment anyplace and anytime, getting his time off whenever he can squeeze it in.

GADOs, usually located at sizable airports, include both operations inspectors and maintenance inspectors. A few large offices also have an electronics inspector and perhaps a repair station specialist. As few as two or three inspectors to as many as half a dozen or more may work out of a district office whose jurisdiction spreads across thousands of square miles.

Inspectors basically are concerned with safety affecting man and machine. Although aircraft accident investigation is a major responsibility, the inspectors' duties embrace a wide range of activities.

The operations inspector:

■ investigates flying violations and complaints, such as citizens who object to a low flying aircraft; near mid-air col-

Left, maintenance inspector pauses on the line to make a surveillance check at a general aviation airport. *Below,* his duties include approving a non-standard antenna installation on executive aircraft. *Right,* he checks the craft's radio gear as part of the inspection. *Below right,* he discusses a problem encountered by mechanic working on C-54.

GENERAL AVIATION INSPECTORS

lisions; or aircraft landing on the wrong runway.

■ conducts flight tests and ground examinations for private, commercial and air transport ratings, instrument and instructor ratings, instrument proficiency checks, and examinations and checks for helicopter, glider, and other types of aircraft.

■ insures that air shows are conducted in accordance with regulations and provides advice on spectator protection. He's the man who sees that Santa Claus plans his helicopter descent in the shopping center in accordance with good operating practices.

■ investigates applications for waivers to conduct industrial and agricultural aircraft operations.

■ inspects and approves flight and ground schools.

■ investigates hazards to air navigation such as tall buildings, towers and other possible obstructions.

■ flight checks proposed airport sites for obstructions, prevailing wind and terrain.

His teammate, the maintenance inspector, also has a series of responsibilities:

■ certificates maintenance airmen—the mechanics and specialists who are licensed by FAA to repair all components of an aircraft, from airframes to radio, propeller, instruments, engine and even parachutes.

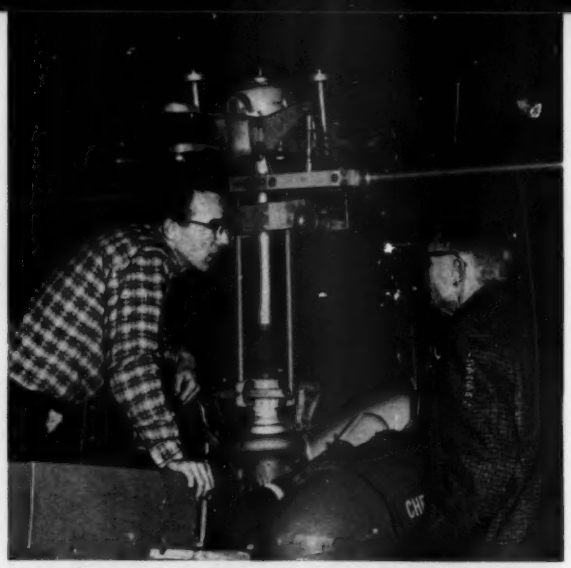
■ conducts surveillance inspections of aircraft and gives both practical and written examinations for maintenance airmen.

■ certificates schools and repair stations and conducts follow-up surveillance.

■ participates in certification of air taxi and agricultural operators.

■ approves alterations or modification to aircraft.

Maintenance inspectors are alert to critical malfunctions and defects in aircraft and components, and when they discover one, they recommend a "fix" be incorporated in an airworthiness directive card. This goes to all GADOs and is available by subscription from the Government Printing Office. On less critical defects the inspector investigates the problem and submits information for publication in *Maintenance Aids,*



Another inspector checks technician's repair work on helicopter rotor.

a periodical that is also available to the public.

When an accident occurs, inspectors are among the first on the scene. Although the Civil Aeronautics Board is responsible for accident investigation to determine the probable cause, it has delegated investigative authority to FAA on all non-fatal accidents to aircraft, except helicopters, weighing 12,500 pounds or less. However, FAA inspectors assist the CAB on all accident investigations in order to determine if the pilot and aircraft were properly certificated, if the plane was properly maintained, if there was a violation of regulations, and whether or not FAA facilities were involved.

Most inspectors, both operations and maintenance types, are old hands in the flying and aircraft business. Minimum requirements for an operations inspector include a commercial license—both single and multi-engine, instrument rating. flight instructor rating, and 500 hours of flight instruction. Many also have an air transport rating, an average of 7000-9000 hours and have been with FAA/CAA for 15-20 years.

A maintenance inspector must have an airframe and powerplant (A&P) rating, supervisory and administrative experience and from six to seven years of general and specialized experience. These are minimum requirements. The average maintenance inspector has been in the business 15-20 years, with many having 30 or more years experience.

The general aviation inspectors, both operations and maintenance, lead a busy life in a never-ending quest to improve air safety. They work with a larger section of the aviation community than any other FAA representatives. Although much of their task involves light aircraft, they are responsible for many large planes too. Records show that there are more "heavies"—those over 12,500 pounds—in general aviation than there are in air carrier operations.

Maintenance inspector, *right*, watches technician repairing radio at FAA-approved repair station during his periodic visit to check manuals and procedures.

Parachute Riggers Pack 'Em with Care

Joe Crane and Company of Mineola, N. Y., deals in a very special kind of life insurance.

As one of the 17 parachute lofts certificated by the FAA in the United States, the Long Island firm packs an average of 350-400 chutes each month. Much of this business is generated by nearby Republic and Grumman aviation corporations.

About 50 percent of the parachutes handled by the company are personnel types. The remainder are drag chutes used by Republic's supersonic F-105 on landings.

Joe Crane, the firm's president, has been a rigger and parachutist since 1923. A veteran of some 689 jumps, he serves as president of the Parachute Club of America, a national association of sport parachutists. He holds a master rigger's rating.

Following in his father's footsteps is Joe Crane, Jr., a certificated rigger and assistant manager of the company. He has been in the business since 1954.

Experienced riggers like the Cranes can pack a standard personnel-type chute in approximately 45 minutes. The bulkier drag chutes requires a bit more time.

When completed, packs are sealed with the individual seal assigned to each rigger by the FAA.

Inspection of Crane and Company is the responsibility of the FAA's General Aviation District Office at Lindenhurst, N.Y. All lofts must be inspected at least twice a year to assure that they are properly staffed and equipped to perform their responsibilities in accordance with their certificates. Lofts may be rated to perform one or more of the following jobs: (1) packing and general maintenance, (2) canopy overhaul, (3) harness overhaul, (4) metal parts and container overhaul, and (5) drop testing.

Equipment required includes adequate facilities for packing and storing parachutes and suitable housing for hanging them. This housing must be adequately heated, lighted and ventilated and of sufficient height to permit full extension of the chutes.

Loft personnel working on other than drag or cargo chutes must hold an FAA rigger's certificate which requires them to meet specific standards of experience, knowledge and skill. For example, they must have packed, under the supervision of a master rigger, at least 20 chutes of each type for which a rating is held. Type ratings are issued for seat, back, chest and lap chutes.

Holders of master rigger's certificate must have had at least five years experience and have packed not less than 100 chutes of each of two types in common civil use.

In an age of automation, the job of the parachute rigger is still largely a manual one. Joe Murano, a certificated rigger with Crane and Company, shows careful handling given each parachute.

TEAMWORK BRINGS LOST PILOT AND PASSENGERS TO SAFETY

There is a fraternity of the air that thrives in flying clubs, over coffee cups and in hanger sessions at a thousand airports across the country. But the strength of this fraternal feeling is never more clearly demonstrated than when a pilot is lost. This is the factual and only slightly condensed story of such a pilot, lost in the fog and cloud layers above California last winter while enroute from Riverside to Redding with two passengers. It also is the story of air traffic controllers, an airline pilot and another light plane pilot who joined forces to try to bring the lost aircraft safely to earth.

The incident dramatizes the camaraderie that exists among those who fly and those devoting their lives to safe flight. But it does more than that; it dramatizes the hazard of an inexperienced pilot in not understanding his own limitations and failing to make that 180 degree turn which could get him back out of the weather before it is too late. It also shows why a pilot who is in trouble should say so, ask for help, and not wait until it is too late. By being willing to admit his perplexity and to accept help in time, the pilot came through all right and, undoubtedly, a far wiser airman.

The following is a transcript of the taped radio transmission, condensed no more than necessary to fit these pages. The lost aircraft and pilot are identified by the call sign Nan XYZ to avoid any embarrassment. The only purpose in reprinting this transcript is to dramatize the safety lessons and, hopefully, to keep it from happening again.

Major characters in the drama were George Baldwin, air traffic controller at FAA's Oakland Air Route Traffic Control Center (ARTCC) and an experienced pilot familiar with the XYZ model; Captain Milo Kopp, in command of United Airlines Flight No. 388; Louis Pelletier, pilot of the Piper Aztec, N4875P; and other Flight Service Station (FSS) and Center personnel.

RBL (Red Bluff) FSS: Oakland Center, this is Red Bluff radio, we have a little problem with an aircraft—Nan XYZ—not sure of his position. We can give him steers into Red Bluff. We want to know if you have any traffic.
OAKLAND ARTCC: I have traffic at four thousand. Is he VFR?
FSS: Oh, no. He's in the soup at two thousand.
ARTCC: ATC requests XYZ contact the Oakland Center one one eight point four or one two five point seven now for radar identification and steers into Red Bluff.
NAN XYZ: This XYZ. Where in the hell am I now?
ARTCC: XYZ. Climb and maintain four thousand, over.
XYZ: This is XYZ I read you and I am climbing out.
ARTCC: Do you have VOR equipment?
XYZ: I don't know what I've got.
ARTCC: Roger. XYZ remain on this frequency. How much more fuel do you have? Over.
XYZ: About one quarter of a tank—about three quarters of an hour. I don't know where in hell I'm at.
ARTCC: Roger XYZ. What is your present heading?
XYZ: I am flying at twenty nine degrees.
United 388: XYZ, this is United Air Lines. What is your estimated position? Over.
XYZ: I have no idea.
United 388: Where did you take off from and how long have you been flying on what heading?
XYZ: I took off at Riverside I have been flying for three hours and forty five minutes.
ARTCC: Roger what is your present heading? Over?
XYZ: My present heading—I am going pretty near due east—due west three degrees.
ARTCC: Roger. Ah XYZ we're trying to get a fix on you now. Over.
XYZ: I am heading due north.
ARTCC: Roger XYZ. Make right triangular turns two minutes. Over.
XYZ: Got yah.

George Baldwin

ARTCC: Roger. Amend that to one minute leg. Over.
ARTCC: XYZ. This is the Oakland Center. On your right turn now fly one minute. Make a right turn, fly one minute on that leg and continue and we will see if we can pick you up. Go ahead.
XYZ: I still have no idea where I'm at.
ARTCC: XYZ roger, and ah can you give me your compass heading now—your compass heading.
XYZ: North twenty four degrees (*unintelligible*) dead west right now.
ARTCC: Is that two four zero—two four zero degrees?
XYZ: I don't understand what you want—get me out of this fog up here and get me to hell out of here.
ARTCC: XYZ, roger, your compass heading, can you give me your compass heading—you're flying by compass, you have a compass in front of you there now—if you'll just take a look at that and give me the reading off it.
XYZ: We are flying due west.
ARTCC: Roger, roger, that's a two seven zero heading—compass heading.
XYZ: I believe that's what it is—it's a fog—we're still in a fog—at seven thousand feet—we're still in the fog flying due west twenty degrees. I have no idea of what I am even doing.
United 388: XYZ, ah do you read United?
XYZ: XYZ, I read you but I have no idea what I'm doing.
ARTCC: XYZ. We believe we have you in radar contact now approximately forty five miles south, southwest of Red Bluff. Can you take up a heading of ah zero eight five for about two minutes? Over.
XYZ: Zero eight five. I have no idea of what the hell it is—I'll tell you the truth about it.
ARTCC: Okay be sure and keep your airspeed up—keep your airspeed up above hundred—continue your climb on up to about ten thousand, over.
XYZ: Got yah.
United 388: Center, United ah three—eighty—eight. I believe if he just takes a cardinal heading like ah, east it probably will be a little easier for him to understand at this time. Ah, just relax a little bit.
ARTCC: Okay, fine, thanks United.
ARTCC: XYZ, this zero eight five heading. Only five degrees off of east. Just take up east on your compass, east, over.
United 388: United. Do you read now?
XYZ: I read you but I don't know what I'm doing.
United 388: Okay now, just relax, we all get in a spot once in a while—if you'll just relax your hands on the wheel—just for a second, I think we'll calm down. Take your feet off the rudders for a second and then, ah, just shake your hands for a bit and relax and go back to it and just head east which is "E" on the indicator. East heading and, ah, hold that for a minute or so. Just nice and straight and I think we can calm down quite a bit and accomplish quite a bit, okay?
XYZ: Okay I got yah.
United 388: You have a good airplane under you. It's a real good machine and ah, with just a little help, it will do a real good job for you.
XYZ: We are going due east now at nine thousand feet.
United 388: Very good, very good, fine. Just hold that now and you'll be doing real good.
XYZ: My gas is getting down below a quarter

of a tank.

United 388: We all make mistakes—relax and now we'll get out of this real good.

ARTCC: United, this is Oakland, he should have a reserve of—after he goes on empty—he should have five or six gallons—we show him now about forty-five miles bearing approximately two zero zero from Red Bluff.

United 388: Roger. If you could work him down in ah the Sacramento Valley, there's lots of airports in the Sacramento Valley which he can distinguish very easily.

ARTCC: XYZ, continue your present heading. It will take about another twenty miles to get you over into the valley, over.

United 388: XYZ, from United. Ah, your position is probably west of the ah Sacramento Valley, up near Red Bluff, and the Center is going to take you east over to the valley and then drop you down in the valley where you'll have a lot better weather.

XYZ: Okay I got it—we will hold an east heading and keep on ah climbing out.

United 388: That's right, you keep that east heading now and, ah, we'll tell you when you're ready to descend and that'll put you in the valley. So you listen to him and relax a little more—I think once in a while just take your hands off the wheel and shake them a little bit and go back and it'll be pretty easy for you.

I would set up a cruise now with your mixture leaned out so you can conserve your fuel.

ARTCC: XYZ what altitude you at now? Over.

XYZ: We're up at ninety-five hundred feet and we're having trouble.

ARTCC: Roger and what is your present heading—are you still heading east? Over.

XYZ: We are heading now east—we're heading north.

United 388: XYZ from United, now if we trim the airplane back into a right turn, back to an easterly heading and stop on the easterly heading, hold it there, we'll be getting over the valley.

ARTCC: Take up a heading of one eight zero which is south on your compass, south on your compass, maintain that heading until further advised. Be sure and keep up your airspeed and, as United said, relax on your controls. Over.

United 388: Okay, if you'll ah right rudder into a right turn to a southerly heading, head south, "S" on the compass, and hold that. The Center is working you very well now.

XYZ: You want—you want me to go which direction?

United 388: Want you to go south, south. Relax, we're working on you so just relax if you can. I know it's hard but we can do it.

XYZ: This is XYZ—we're having trouble.

ARTCC: XYZ, this is Oakland Center. You appear to be over low terrain at the present time—over low terrain—if you'll just take up a southerly heading, head south, head south make a real gradual turn.

United 388: XYZ from United, just turn to a south heading now, just turn nice and easy to the South heading and hold it south, okay?

ARTCC: XYZ, settle down now, settle down now. Head south, south on your compass. Be sure and keep your airspeed up, make a gradual descent, a gradual descent to seven thousand—

Captain Milo Kopp

be sure and keep your airspeed above a hundred knots, over.

United 388: XYZ—now if you'll—when you get to your southerly heading, if you'll make your descent to seven thousand, you'll be in good shape.

XYZ: This is XYZ. We're way out of control!

ARTCC: XYZ let the controls go. Just let XYZ release the controls. Release the controls. Just let go of them, over.

XYZ: I got yah.

ARTCC: XYZ don't worry about your airspeed picking up. Just relax, the airplane will come out of it on its own. If you have at least seven thousand feet you'll be all right in your present position—there's clear weather about twenty-five miles to the south. As soon as the airplane recovers try to take up a southerly heading, over.

XYZ: The tank is empty!

ARTCC: You'll have about five gallons—five gallons will take you where you have to go. Has the airplane righted itself and can you tell me your airspeed? Over.

XYZ: My airspeed is about one hundred and ten miles an hour.

ARTCC: If you have one ten you're all right. You are all right. If you were in a spin or in any kind of a spiral, it should be in excess of that if your trim is on normal. Was your trim normal when you started, when you went on instruments? Over.

ARTCC: At a hundred and ten knots you should be all right. Head south, head south, just "S" up there on your compass, your liquid compass.

XYZ: This is XYZ we're at fifty-five hundred feet and at the present time we are going straight north, thirty three degrees.

ARTCC: You are heading now towards higher terrain. Turn right, turn right, back to south, back to south. Make your turn with your rudders. Just use a little right rudder pressure, right rudder pressure, that's all—not very much, just a little—just keep your hands off the wheel don't use the wheel, don't pull back on it or push forward, just use a little right rudder.

ARTCC: Nan four eight seven five Papa, Oakland Center. Will you give XYZ a call? He's about twenty five miles north of your present position, and see if you can raise him?

N4875P: Okay. XYZ, Aztec seven five Pop.

XYZ: XYZ, I'm at six thousand feet heading—this thing won't stay straight!

N4875P: Okay, just steady down—just try to keep around the "S" and around a hundred and ten miles an hour. If you can descend to about five thousand you'll break out of this bottom layer—we're at ah forty five hundred right now between layers and we'll try to keep an eye out for your—we'll turn our landing light on. Oakland, ah seven five, do you have us both on radar?

ARTCC: Four eight seven five Pop, affirmative. I have seven five Pop, I do not have the XYZ. That last known position of the XYZ was about 12 miles east of Red Bluff; if he heads southerly he should be all right, over.

N4875P: Yeah (*unintelligible*) if you want me to stay where I am, I'm about forty-five hundred and I am VFR and I'll stay on Victor two three and work up towards Red Bluff and maybe I can see him when he comes out.

ARTCC: Okay, fine, do you have a flasher on your airplane? Over.

N4875P: Yeah, we got a rotating beacon and we'll turn the landing light on too.

ARTCC: Okay, fine, thanks a lot. The estimated position of the XYZ from your present position is about seventeen miles due north, due north, over.

XYZ: This XYZ I am flying at six thousand feet due south.

ARTCC: Okay XYZ. Make a nice gradual descent now to about five thousand feet, five thousand. You should have another aircraft at your twelve o'clock position, that is right off the nose, about fifteen miles. Do not gain excessive airspeed in descent; the best way to do it would be just to roll a very slight amount of trim forward—just roll the trim forward a little—and let the airplane come down by itself.

XYZ: Will you repeat that again.

OAK ARTCC: Just drop the nose a little bit; don't pick up any excess speed; hold your airspeed just as low as you can, around a hundred and ten; a hundred fifteen, over.

N4875P: Oakland Center seven five, I think I've got him; I'm going to flash my light. XYZ, do you see a light ahead of you?

XYZ: Yes I do!

N4875P: That's us! Come on over and ah we'll take you to Red Bluff.

ARTCC: Okay, ah take over from here four eight seven five Pop. I think he's got I would say not more than about ten minutes fuel.

N4875P: Okay, I think we can almost see the lights of Red Bluff. If you'll clear me for an approach to Red Bluff, I'll go slow enough and I think he can follow me.

ARTCC: Nan four eight seven five Pop, you are cleared for an approach to the Red Bluff Airport.

N4875P: Okay, I'm cleared for an approach. Now I'll slow down to about a hundred miles an hour. You follow me and we'll go into Red Bluff and get down.

ARTCC: XYZ are you in the clear now completely? Over.

XYZ: I believe I am.

ARTCC: Okay, fine, the lights should be on at Red Bluff shortly. Just follow four eight seven five Pop. You don't need to talk to us anymore, over.

United 388: Oakland Center from United three eighty eight. Sorry I couldn't help you any more. We'll change over now to Seattle Center.

ARTCC: Okay, fine job, thanks a lot.
XYZ: I'm at forty five hundred feet now. Where am I now?
N4875P: You just keep coming toward me and (*unintelligible*) we are going right straight to Red Bluff now.
ARTCC: Nan four eight seven five Papa, talk a little more to XYZ will you please? I believe it helps him.
XYZ: This is XYZ I am four thousand feet and I'm following you.
N4875P: Okay now, there's a light area up—it ought to be off your right wing—where Red Bluff is. Now I'm going to slow down to about ninety so you'll be able to catch me, I think. My compass right now is reading three zero on the magnetic compass, we are going northwest.
ARTCC: Nan four eight seven five Papa how far are you from the Red Bluff Airport now? Over.
N4875P: I'm not absolutely sure of it I would say probably about twenty miles.
ARTCC: XYZ, how are you doing now—do you have the other aircraft in sight yet? Over.
XYZ: I am following him.
ARTCC: Okay, fine, I just wanted to talk to you to see how you were doing. Don't pay any attention to your fuel, just follow him as long as you can. If it konks out, why then I'll talk to your further.
N4875P: XYZ, seven five Pop. Ah the cloud cover doesn't go all the way to the ground underneath us. We'll have quite a bit to see when we get out underneath too.
ARTCC: Seven eight Pop and XYZ, the Red bluff weather is estimated one thousand eight hundred overcast, visibility three miles with haze. You'll have plenty VFR after you break out.
N4875P: Thank you Oakland.
XYZ: This is XYZ, are you descending?
N4875P: No—no we're about oh forty-one hundred feet right now. You can stay right there with us, ah we'll stay at that altitude until we get up over the airport.
XYZ: I'm at forty two and you look like you're lower than I am.
N4875P: Okay we'll stay at forty one.
ARTCC: Nan four eight seven five Pop and XYZ, the Red Bluff altimeter; Three zero zero six, over.
XYZ: This is XYZ, are you going up?
N4875P: Just a little bit. We are watching you and we are just about to Red Bluff now. Hang on. Okay XYZ, we are over the Red Bluff Airport right now—now I'm going to make a real slow turn to the right and you follow me right on around and we are going to head back down the valley the way we were coming up, and let down.
XYZ: This is XYZ, are you descending?
N4875P: Not quite yet. I want to wait till you catch up with me now and get in line, because the heading that I'm on right now is the heading we are going to use to let down on.
XYZ: This is XYZ what are you doing—turning?
N4875P: No, we are going straight ahead. Now our compass reads about one four one four, XYZ. Now trim your airplane for about a hundred miles an hour so it will kind of glide hands off. Your prop ought to be turning around twenty-two hundred, twenty-four hundred rpm. Why don't you set about ten inches of manifold pressure. Just throttle it back until it settles to about a hundred miles an hour. Still see me?
XYZ: This is XYZ. I have got it trimmed to a hundred miles an hour and I'm losing you.
N4875P: All right, we are just on the tops of the clouds. Now you just stay one four zero about a hundred miles an hour, and about ten inches of manifold pressure on your throttle.
XYZ: This is XYZ. I have lost you again!
N4875P: The clouds are getting a little too thick . . . can't fly formation quite close enough, but you are heading south of Red Bluff right now. You are in fine shape as long as you can make your compass read right around one four, one four on the compass, just so your airplane is going downhill. Around a hundred miles an hour.
XYZ: XYZ, I'm at thirty-five hundred feet, ninety miles an hour.
N4875P: That's good, you're doing real good, just keep her coming on down. I'm at three thousands so I'm lower than your are.
XYZ: This is XYZ.
N4875P: Okay XYZ seven five, a hundred miles an hour or thereabouts. Try ten inches of manifold pressure. Try to keep that little old needle in that turn and bank indicator pointing straight up in the center. You work the rudder pedals to work that little needle.
XYZ: I'm at three thousand feet now I can't see nothing.
N4875P: That's okay. I'm at twenty five and as long as you stay on one four on the compass at a hundred miles an hour and the needle centered, why, you got it made.
XYZ: I can't hold it on one four for some reason. I'm at three thousand feet I'm on—hell, I'm on about three degrees.
N4875P: Okay, just push on the right rudder now a little bit and make the needle swing to the right on the gauge, so when your compass reads about one four again you'll be out and you'll be able to see the ground at two thousand feet. I can see the ground now I'm at two thousand feet. I can see the lights and ah we're in real good shape here so I'll wait down here for you.
XYZ: I'm having trouble holding it on a heading.

Louis Pelletier

N4875P: Let it go down a little faster.
XYZ: I got it on a heading now of twenty four degrees.
N4875P: Okay, push on the left rudder pedal a little bit there. You probably want to turn to the left.
XYZ: Six hundred feet now.
N4875P: What's your altitude?
XYZ: Hundred miles an hour.
ARTCC: Seven five Pop, can you get him down through it a little faster?
N4875P: Okay we're going to hurry it up.
N4875P: XYZ, seven five, what's your altitude now?
XYZ: This is XYZ, I'm at twenty-five hundred feet at about ninety miles an hour. I've got no idea of what the hell heading I have.
N4875P: Okay, just close your throttle all the way. Close your throttle all the way, you're bound to come out within a few miles of the airport. Do you know where your carburetor heat is? Pull it on to just play safe.
XYZ: XYZ, I am at about two thousand feet.
N4875P: Okay you'll be able to see the ground very shortly.
XYZ: I see some of it right now!
N4875P: All right do you see the airport at Red Bluff—are you sure you're over Red Bluff?
XYZ: Yes I do!
N4875P: Okay, go ahead and land then.
N4875P: And ah seven five will cancel IFR with the Center.
ARTCC: Four eight seven five Pop, understand you're cancelling IFR.
ARTCC: Seven five Pop, Red Bluff DF shows him eighty degrees from Red Bluff.
XYZ: This is XYZ, what direction am I supposed to land here?
N4875P: I would say it wouldn't make much difference tonight. Just pick a runway out and land on it. I'll call and tell them you're coming in.
ARTCC: Seven five Pop, Red Bluff Radio has him in sight now.
N4875P: Okay, well I guess he got away with it then, thank you.
ARTCC: Thank you very much.
N4875P: Righto.
ARTCC: Can you see him landing?
N4875P: I think I did, I'm not sure.
XYZ: This is XYZ, I'm having trouble with my landing gear now!
N4875P: Okay, just pull back on it and just give it a good hard yank.
XYZ: I am going to land to the north.
N4875P: Did you get your wheels down?
XYZ: Got the wheels down.
N4875P: Oakland, we got him in sight. I guess we're going to have to tie up until we actually see him on the ground though.
ARTCC: Seven five Pop, that's fine, Red Bluff has him in sight also now, coming in landing to the north.
N4875P: He's on the downwind leg.
ARTCC: Seven five Pop, can you tell him to turn on his landing lights?
ARTCC: Seven five Pop, he's got his landing lights on.
N4875P: Okay he's on the ground safe and sound.

Letters to the Administrator

FAA

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. Please keep them brief. No anonymous letters will be used, but names will be withheld on request.

• U.S.–Canada Operations

I have tentative plans to start a local float plane charter operation in the northern United States this spring. Occasionally, flights may be scheduled into Canada. Is there any special permit or licensing required to do this, either locally or into Canada?

(Name Withheld)

You will need an Air Taxi Operator's Certificate to conduct the operation proposed. The pertinent regulations are listed in Appendix B of Civil Aeronautics Manual 42 *which may be obtained for $2 from the Superintendent of Documents, Washington 25, D. C.*

The Canadian Government requires that a U. S. air taxi operator obtain a Canadian Air Transport Board permit prior to conducting such operations into that country. Applications for this permit may be obtained from the Canadian Air Transport Board, Ottawa, Canada. It is suggested that you contact FAA's General Aviation District Office, Willow Run Airport, Ypsilanti, Mich., to discuss your proposed operation and the procedures to be followed for certification as an air taxi operator.

• Right Hand Operation

I own a Cessna 170 with functioning dual controls. Can I operate this airplane from the right hand side? If there is a regulation on this, can you tell me where I can obtain it.

M. E. B.
Worthington, Minn.

The pilot in command of such an aircraft may occupy the right front seat providing:

a. Fully functioning dual controls, including brakes, are installed on that side.
b. All control are readily accessible to the pilot.
c. No limitation against such operation is included in the approved aircraft flight manual or its operating limitations.

• Markers For Pilots

As a pilot, I have two suggestions for your consideration:

a. It would be very handy if all the major highways which receive Federal aid were marked with their numbers large enough to be seen from the air. These numbers could be painted at intervals of every five or ten miles and would be large enough so that they wouldn't be confused with speed limit signs by motorists.

b. If major airports had a radioactive strip down the center of the runway similar to a white line and large aircraft had a scintillation counter installed, they could accurately locate a runway in any weather. These counters are so accurate that they could locate such a strip and the strip would be absolutely harmless to workers, plane and passengers. They could also locate the end of the runway and help avoid accidents from short landings.

C. M. W.
San Quentin, Calif.

A number of years ago air markers were painted on highways, particularly in mountainous areas or areas where there were no suitable buildings. This practice, however, was short-lived. The markings on the highway were distracting to motorists and the paint wore off too quickly. Repainting was too costly and time consuming to be practical.

The use of radioactive material has been tried for purposes similar to that which you suggest. For example, it was tried as a means of marking or identifying obstructions. Such use, however, presented a number of problems: (1) The radioactive material had to be so strong to be effective that it was hazardous to personnel, and (2) when a signal was received indicating the aircraft was approaching the obstruction, the pilot had no way of knowing which way to turn to avoid it. Even with use of dangerously strong material, the signal was not received at sufficient distance to be very helpful.

• Ear Discomfort

Recently we had eight cases where employees suffered temporary loss of hearing and pain caused by air travel on short trips in non-pressurized planes. Is there some recommended procedure which can be followed to prevent or minimize any ear condition resulting from such a cause?

A. J. B.
Pittsfield, Mass.

The recommended procedure to prevent or minimize ear discomfort is to properly ventilate the middle ear. The following methods may be used:

a. Swallow frequently just before and during the initial stages of descent.
b. If blockage is imminent, simulate a stifled yawn.
c. It sometimes helps to stretch the neck by bending the head away from the affected ear.
d. Sleeping passengers should be awakened because swallowing and other reactions that might equalize ear pressure do not occur with sufficient frequency in sleep.
e. Acts of swallowing, yawning, etc., should be carried out during each 200 to 300 feet of descent.
f. If the above procedures fail, the passenger may be instructed to hold his nostrils and lips tightly closed while expelling his breath forcefully. Some authorities object to this maneuver, however, feeling that if infection is present, it may be forced into the sinuses or middle ear. This may be especially true in a passenger who may have an upper respiratory infection.

• Type Currency

An exam guide for the private pilot examination says that a pilot who is current in a Cessna 170 cannot carry passengers in an Aeronca Sedan until he has completed the five take-offs and landings in the Sedan. Is this a correct interpretation of "type"?

Such an interpretation discriminates economically against the renter, who may fly half a dozen types of planes a month, set up a trip with friends in a 172 (in which he is legal) and arrive at the airport to find the 172 down, but a Tri-Pacer (which he flies but is not current in) available.

An added problem is night currency. A renter can't always choose exactly the plane he wants, when he wants it, and he may not be able to afford to put in an hour in every available plane making both day and night take-offs and landings every 90 days.

R. E. Gardner
Seattle, Wash.

According to Part 61.47A of the Federal Aviation Regulations, *a pilot is prohibited from carrying passengers in a Cessna 172 unless within the past 90 days he had made five take-offs and landings in some version of the Model 172. "Type" is defined in Part 43.70 of* Civil Air Regulations *as meaning all aircraft of the same basic design, including all modifications, except those which result in a change in handling or flight characteristics.*

However, the five take-offs and landings regulation is not as restrictive as it may appear: No formal checkout is required and an appropriately rated pilot may qualify himself by making five solo take-offs and landings just prior to carrying passengers. Night experience to allow a pilot to carry passengers is not restricted to each type of aircraft he flies. As long as a pilot is current in the type aircraft he wishes to fly (five day take-offs and landings) and is current in night flying (five night take-offs and landings in any type of aircraft permitted by his license), he may carry passengers in that aircraft type.

With an assist from cartoonist Robert Osborn's cheerful pen, a fleet of airplanes takes to the air—secure in the knowledge that with good care they can do the job they were built to do.

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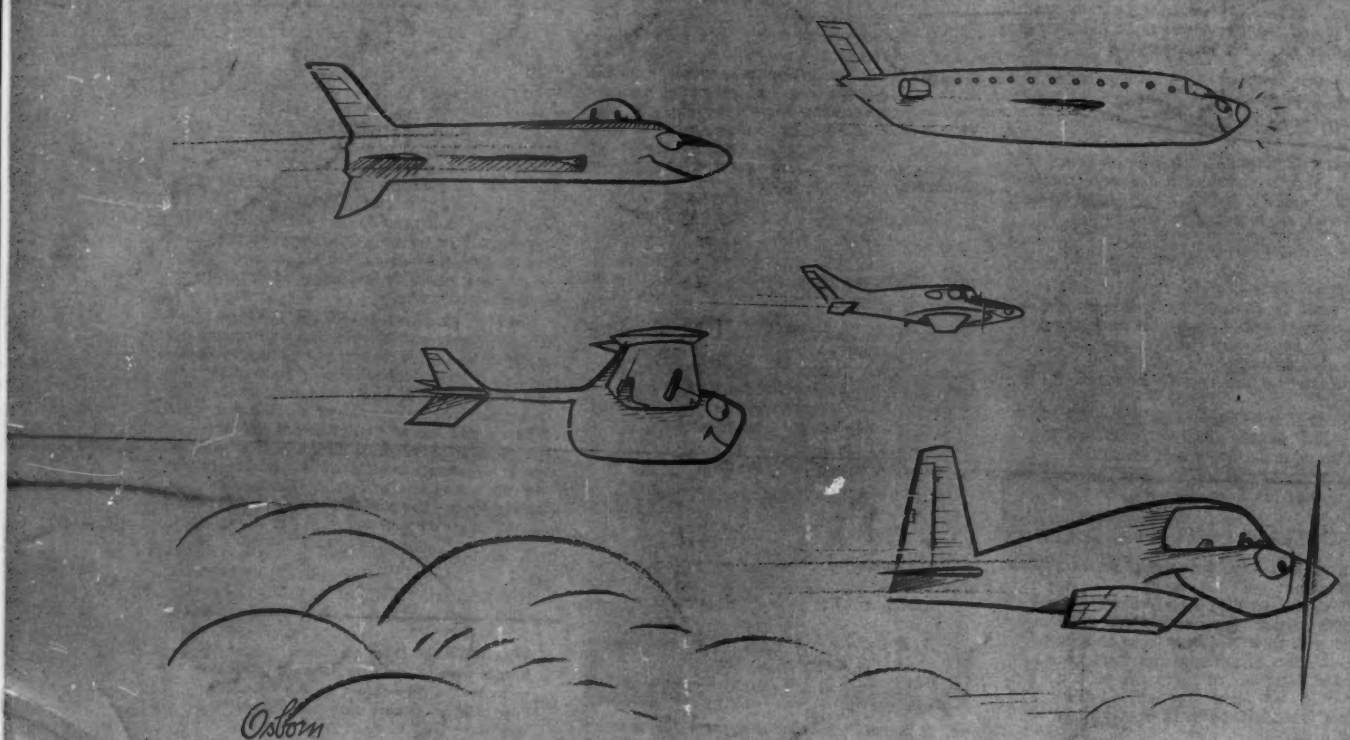

What they need are good pilots and good _maintenance_